UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2

DATE: JUN 0 8 2009

SUBJECT: Removal Site Evaluation for Paul's Tank Cleaning Service, Hainesport Township, Burlington County, New Jersey

FROM: Nick Magriples, On-Scene Coordinator
Removal Assessment and Enforcement Section

TO: File

The New Jersey Department of Environmental Protection (NJDEP) submitted a request to the United States Environmental Protection Agency (EPA), Emergency and Remedial Response Division on November 3, 2008 to evaluate Paul's Tank Cleaning Service (Site) for a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) removal action. A verbal request to assess the Site was received from the NJDEP in July 2008.

The Site consists of a three-acre parcel of land (Block 96, Lot 1.07) located at 1225 Industrial Boulevard Hainesport Township, Burlington County, New Jersey (see Figures 1 and 2). Paul's Tank Cleaning Service operated at the Site from 1962 to 1982. The company cleaned out tanks at schools, factories, and ships on the Philadelphia waterfront. The Site was formerly used in conjunction with the oil tank cleaning operations. Hainesport Township reportedly foreclosed on the property at least eight to ten years ago.

The street formerly known as Industrial Boulevard is no longer actively used. The roadway, which runs between Hainesport-Lumberton Road and a jug-handle turn for Route 38, has been closed off with concrete barriers and there are no businesses on either side of the street. The Site is bordered to the southwest by a vacant property formerly used by Emulsion Marketing, Inc.; to the north and northeast by woods; and to the east and southeast by a commercial park. A Verizon facility is situated at the end of the closed roadway on Hainesport-Lumberton Road. The area around the Site is primarily commercial and residential. The nearest residence is located approximately 1,000 feet southwest of the Site. An estimated 2,280 persons live within one mile of the Site. Route 38, located approximately 1,500 feet from the Site, contains numerous strip malls and commercial buildings. A large strip mall containing a Loews and a Shop-Rite exists at the end of the jug-handle turn.

The groundwater aquifer of concern consists of several sand aquifers within the Raritan and Magothy Formations. The depth to the groundwater table near the Site is reportedly 15 feet and regional groundwater flow is expected to be southwest toward South Rancocas Creek. The South Rancocas Creek, situated approximately 2,000 feet southwest of the Site, flows for 3.8 miles until it reaches Rancocas Creek, which flows for 7.6 miles before it discharges into the Delaware River. Most persons in the area are served by municipal potable supply wells, the closest reportedly being 1.9 miles northwest of the Site. A residential potable well permit survey conducted in February 2009 by the EPA Region II Removal Support Team (RST) contractor, through the Burlington County Department of Health, identified thirteen properties located

within one mile of the Site as having at one time applied for a potable well permit. The closest of these thirteen properties is situated approximately 1,100 feet south of the Site.

In September 1982, the NJDEP observed a lagoon approximately 3,000 square feet in size at the Site that contained discolored water with a dense, oily sheen. The lagoon had been reportedly been present for one or two years. An estimated 13,000 gallons of waste coolant oil had been disposed of in the lagoon. The oil originally was used in cutting and grinding metals, and reportedly contained sulfur, chlorinated compounds, and mineral oil. Sampling conducted by the NJDEP in January 1983 identified polychlorinated biphenyls (PCBs) at 110 parts per million (ppm) in the contents of a 120,000 gallon vertical tank. A sample from the lagoon revealed 570,000 ppm of petroleum hydrocarbons. On September 8, 1983, the NJDEP issued an Administrative Order to the owner for operating a hazardous waste facility and transporting waste without a license. Compliance with this order was reportedly never achieved. In August 1985, the NJDEP collected additional soil and surface water samples, including a sample from the lagoon. The samples reportedly were found to contain PCBs, polyaromatic hydrocarbons (PAHs), and pesticides. Additional inspections, Notices of Violation, and a Field Directive through 1993 did not result in any changes in compliance.

In 1994, the EPA Removal Action Branch and the Technical Assistance Team collected samples at the Site, at the request of the NJDEP as part of a removal assessment. Four composite soil samples collected in areas where there was evidence of past spillage revealed maximum estimated concentrations at one of the locations of toluene (72 ppm), naphthalene (25 ppm), acenapthylene (29 ppm), fluorene (32 ppm), phenanthrene (130 ppm), anthracene (17 ppm), fluoranthene (25 ppm), pyrene (77 ppm), benzo(a)anthracene (27 ppm), chrysene (37 ppm), and benzo(a)pyrene (15 ppm). A sample of hardened sludge at the bottom of the 20-foot high, 120,000 gallon vertical tank, located near the center of the Site, revealed the presence of PCBs at 69 ppm. Although the Site was reportedly abandoned and accessible at the time of this assessment, it was reported that there were no signs of trespassing. A health consultation prepared by the Agency for Toxic Substances and Disease Registry on September 27, 1994 stated that the soil sampling data did not pose a public health threat, although it was recommended that the PCB-contaminated sludge be removed or public access to the Site be restricted.

Site visits were conducted by the EPA Removal Action Branch (RAB) in August and October 2008 as part of the most recent removal assessment. The concrete barriers on each end of Industrial Boulevard have either been moved and/or circumvented. The partial fencing at the Site has been breached at several locations that allow for pedestrian and vehicular access. There is evidence that the Site is being used for recreational activities, as evidenced by partially empty beverage containers, footprints, all-terrain vehicle (ATV) and truck tire tracks, and a plethora of paintball pellets. A set of footprints visible in the sand during one of the site visits was that of a child; likely less than eight years old. Currently, there are 15 tanks and/or tanker trucks present at the Site. Many of the hatches are open or easily accessible and many of the tanks and tanker trucks that remain at the Site have released or are in the process of releasing the waste sludge and waste oil contained within them. At least seven tanks have been removed from the Site and physical evidence exists of attempts to remove others, likely for the purpose of recovering the value on the scrap metal. There are at least eight areas near tanks where waste oil sludge is

present on the ground. One of the tankers had a release of waste oil between August and October 2008. There are two trailers at the Site, one of which was found to contain four, 55-gallon drums of oil and several hundred eight-ounce jars of an industrial hand cleaner. In 1994 it was reported that there were eight, 55-gallon drums stored within the trailer. Several crushed and/or opened five-gallon pails of roofing tar were also present in one of the trailers.

Oil samples collected from five of the tanks and aqueous samples collected from three of the tanks on August 27, 2008 by the EPA Region II RST contractor were subjected to field hazard categorization testing. One oil sample screened with a Chlor-N-Oil kit tested positive for PCBs greater than 50 ppm. Most of the tanks and/or tanker trucks that were opened were found to contain organic vapor readings above background levels. The highest level detected was 25 units above background.

During the period of October 7 - 9, 2008, RAB and the EPA RST contractor collected 23 soil samples from 10 locations scattered throughout the Site (see Figure 3). The locations were biased and samples were collected at intervals of up to 30 inches below grade. All but four of the samples were collected near locations where either sludge or discolored soil was present. At the location of the former lagoon, elevated levels of organic vapor readings were detected throughout a 30-inch deep boring. The highest level detected was 299 units at 30 inches below grade. Eleven oily sludge samples were collected from areas where the waste material was present on the ground surface. Oil samples were collected from six of the tanks from the accessible openings. Two of the drums found in one of the trailers were also sampled. The analyses for these samples generally included the full scan covered by the Target Compound List (not including herbicides) and Target Analyte List, Toxicity Characteristic Leaching Procedure (TCLP) metals for the oil and sludge, and a limited number of Ignitability analyses for the oil and drums.

The analytical results from the sampling event in October 2008 revealed the presence of elevated levels of lead in the oil contained in Tank No. 5 (1,380 milligrams per kilogram (mg/kg)) and Tank No. 14 (924 mg/kg), the latter which also exceeded the Toxicity Characteristic Leaching Procedure (TCLP) limit for lead at 5.4 mg/l. The oil in Tank No. 5 was also found to contain elevated levels of PCBs (540 mg/kg); acetone (52 mg/kg); 1,2,4-trichlorobenzene (23 mg/kg estimated); and dieldrin (6.4 mg/kg). The oil in Tank No. 14 was also found to contain elevated levels of PCBs (32.1 mg/kg estimated); atrazine (63 mg/kg estimated); pentachlorophenol (370 mg/kg estimated); and 2,3,4,6-tetrachlorophenol (1,100 mg/kg). Volatile organic compounds (VOCs) were detected in significantly varying concentrations in the tanks ranging from approximately 1 ppm to 250 ppm (as total VOCs), and included compounds not typically associated with oil, such as: acetone, 1,1-dichlorethene; 1,1-dichloroethane; 2-butanone; and 1,2,4-trichlorobenzene. PCBs were detected in Tank Nos. 6 and 7 at concentrations of 12.5 and 14 mg/kg, respectively. Pesticides were present in nearly all of the oil samples.

The highest concentration of lead detected in sludge that had released from a tank onto the ground surface was 623 mg/kg. A sample collected from a hardened sludge that covers much of the berm around the vertical tank (Tank No. 15) near the center of the Site was found to contain an estimated PCB concentration of 320 mg/kg and estimated concentrations of several compounds not typically associated with oils, such as: 2, 4-dinitrotoluene (5.5 mg/kg);

3,3'-dichlorobenzidene (2.2 mg/kg); 1,2,4,5-tetrachlorobenzene (1.6 mg/kg); and 4,4'-DDT (10 mg/kg). Pesticides were also present in nearly all of the sludge samples.

Elevated levels of VOCs and semi-volatile organic compounds (SVOCs), including polycyclic aromatic hydrocarbons (PAHs), more typically associated with oils were detected in most of the oil and sludge samples collected at the Site. Benzene (39 mg/kg estimated), toluene (56 mg/kg estimated), ethylbenzene (37 mg/kg), xylene (143 mg/kg), and several other VOCs were present in the oil, and in some cases, in the sludge albeit at lower levels. SVOC concentrations varied significantly within both the oil and the sludge. The oil in Tank No. 7 contained the highest concentrations of most of the SVOC detections, including: naphthalene (3,900 mg/kg), 2-methylnaphthalene (6,000 mg/kg), acenaphthylene (4,600 mg/kg), fluorene (2,800 mg/kg), phenanthrene (15,000 mg/kg), pyrene (6,200 mg/kg), benzo(a)anthracene (1,500 mg/kg), and benzo(a)pyrene (1,300 mg/kg). The sludge samples collected at the Site were found to contain similar SVOC constituents as the oil albeit at lower levels than were identified in Tank No. 7.

The oil-based material found in the drums at the Site, besides containing benzene, toluene, ethylbenzene, and xylene, was also found to contain lower levels of acetone, trichloroethene, cis-1,3-dichloropropene, heptachlor, and aldrin.

Low levels of VOCs not typically associated with oils, including: 1, 1-dichloroethene; acetone; carbon tetrachloride; trichloroethene; tetrachloroethene; and 1,3-dichlorobenzene were identified in soil samples throughout the Site. Elevated levels of VOCs were detected in the soil at the location of the former lagoon, especially between 18 to 30 inches. The compounds containing the highest concentrations included: 1,1,1-trichloroethane (2.4 mg/kg), toluene (20 mg/kg), ethylbenzene (12 mg/kg), xylene (91 mg/kg), and styrene (46 mg/kg). Elevated levels of SVOCs were identified in most of the soil samples collected at the Site. The compounds containing some of the highest concentrations included: naphthalene (32 mg/kg), acenaphthene (76 mg/kg), phenanthrene (420 mg/kg), anthracene (98 mg/kg), fluoranthene (470 mg/kg), pyrene (350 mg/kg), benzo(a)anthracene (190 mg/kg), chrysene (170 mg/kg), and benzo(a)pyrene (150 mg/kg). Elevated levels of SVOCs were also identified in the subsurface samples collected at the lagoon at increasing concentrations with depth. Low levels of PCBs were identified in most of the soil samples collected at the Site, with the maximum concentration identified being 2.3 mg/kg.

As a point of comparison, of the 23 soil samples collected, 12 samples exceeded the NJDEP Soil Remediation Standard (June 2008) for PCBs for direct contact in a residential setting (0.2 mg/kg) and five samples exceeded the standard for a non-residential setting (1 mg/kg). The EPA Region III Risk-Based Concentration for PCBs corresponding to a lifetime cancer risk of one in one million for residential and industrial soil settings is 0.32 mg/kg and 1.4 mg/kg, respectively.

A calculation of the benzo(a)pyrene (BaP) equivalent carcinogenic PAH value for the most contaminated soil sample collected during the October 2008 sampling event reveals an estimated concentration of 181 mg/kg. This sample was collected in a sandy area near the entrance to the Site that contained hardened oil droplets. The surface soil samples collected across the entire Site had an estimated average BaP equivalent value of 34.9 mg/kg. The BaP

equivalent carcinogenic PAH value represents a weighted concentration resulting from the concentration of each of the seven carcinogenic PAHs multiplied by their respective toxicity equivalent factor; a factor describing how carcinogenic each PAH is relative to BaP.

The tanks and tanker trucks at the Site have been abandoned in an uncontrolled manner for over 20 years. They have been subjected to seasonal temperature variations and degradation, which has compromised their structural integrity and resulted in releases of contaminated oil and sludge containing CERCLA hazardous substances onto the ground surface. These releases can be expected to continue into the future as the tanks further degrade. Moreover, the presence of trespassers at the Site removing tanks increases the probability that additional releases will occur.

The soil at the Site is sandy and very easily made airborne when disturbed by persons walking across the Site. The area in and around the former lagoon contains dark, gray sandy soil. South of the lagoon is a hardened pile of oil-caked soil, reportedly removed from the lagoon in the past. The berm around the vertical tank at the center of the Site also contains hardened, oil-caked soil. Persons that have been accessing the Site on ATVs and those participating in paint ball recreational games will continue to be exposed to the hazardous substances that are present in the areas where the contaminated oil has been released and where soil contamination has been identified.

The abandoned, used oils that are present in the tanks and tanker trucks at the site are dark-colored in nature and contain CERCLA hazardous substances, in particular heavy metals, VOCs and SVOCs that are above the levels that would typically be present in virgin petroleum products. As such, the material can be considered waste oil, which is not covered under the CERCLA petroleum exclusion. All of the materials listed above, except for petroleum hydrocarbons and atrazine, are CERCLA designated hazardous substances as defined in section 101(14) of CERCLA, 42 U.S.C. § 9601(14). The hazardous substances identified in the waste oil and sludge constitutes a "release," as defined in Section 101(22) of CERCLA, 42 U.S.C. Section §9601(22). The Site is defined as a facility under section 101(9) of CERCLA, 42 U.S.C. §9601(9).

Conditions at the Site meet the requirements of Section 300.415(b) of the National Contingency Plan (NCP) for the undertaking of a CERCLA removal action. Factors from the NCP Section 300.415(b)(2) that support conducting a removal action at the site are discussed below.

There is a potential exposure to hazardous substances or pollutants or contaminants by nearby populations or the food chain **(§300.415(b)(2)(i))**. Elevated levels of lead, PCBs, and other hazardous substances have been identified in the soils and in the released materials. There is limited fencing at the Site which allows for both pedestrian and vehicular access. The Site is being actively used by persons for recreational purposes and for illegally removing tanks from the Site. Persons, including children, are trespassing onto the Site and coming into direct contact with contaminated oil and sludge that has been released from tanks and tanker trucks, and soil that has been impacted by hazardous substances from the past operations at the Site. The condition of the soil readily allows for inhalation by persons running around the Site while playing. The contents of the remaining tanks and tankers are readily accessible to persons accessing the Site.

Lead is a cumulative poison where increasing amounts can build up in the body eventually reaching a point where symptoms and disability occur. Particularly sensitive populations are women of child-bearing age, due to the fetal transfer of lead, and children. Cognitive deficits are associated with fetal and childhood exposure to lead. An increase in blood pressure is the most sensitive adverse health effect from lead exposure in adults. Effects on the kidney, nervous system and heme-forming elements are associated with increasing blood lead concentrations, both in children and adults. Other symptoms include: decreased physical fitness, fatigue, sleep disturbance, aching bones, abdominal pains, and decreased appetite.

The relationship between soil lead concentrations and the consequent impact on blood levels in children has been studied through numerous epidemiological studies. Based on these epidemiological studies, it is generally believed that persistent exposure to soil-borne lead results in an increase in blood lead levels (in children) of 1 to 9 ug/dl per 1,000 ppm lead in soil. Although this relationship may become less robust as exposure durations decrease and soil lead levels increase, it nonetheless provides compelling evidence of the potential lead hazard associated with the excessive lead concentrations found in the soil at the Site.

PCBs are readily absorbed into the body by all routes of exposure. They may persist in tissues for years after exposure stops. Long-term exposure to PCBs can affect the skin and liver. PCBs may impair the function of the immune system and at high levels have been shown to produce cancer and birth defects in laboratory animals. Although PCBs are suspected as a human carcinogen, they have a very low potential for producing acute toxic effects. PCBs bioaccumulate to concentrations that are toxic. A number of human studies indicate that PCBs can cross the placenta and locate in the fetus. PCBs also concentrate in human breast milk.

BaP can be absorbed, at varying rates, into the body by all routes of exposure. It is considered a known animal and probable human carcinogen. The estimated average BaP equivalent concentration of 34.9 mg/kg identified in the samples collected at the Site is above the Agency for Toxic Substances and Disease Registry's Cancer Risk Evaluation Guide (CREG) of 0.1 mg/kg. The CREG represents the amount of a contaminant in the environmental medium of concern that is associated with a one in a million excess cancer risk (one additional cancer in one million exposed people). It is also above the EPA Region III Risk-Based Concentration (0.39 mg/kg) corresponding to a lifetime cancer risk of one in one million for industrial soil settings.

There are hazardous substances or pollutants or contaminants present in drums, barrels, tanks or other bulk storage containers, that may pose a threat of release **(§300.415(b)(2)(iii))**. There are currently 15 tanks and/or tanker trucks at the Site, eight of which have released some portion of their contents. Several of the tanker trucks that show signs of leakage appear to have deteriorated bottoms, which could potentially fail completely in the future. One such tanker truck had a release of waste oil between August and October of last year, increasing the amount of contaminated oil and sludge present on the ground beneath it. A footprint is evident in the oil sludge. All of the tanker trucks are sitting on their front jacks, most of which have either collapsed or are damaged. Most of the tanks and/or tanker trucks contain open and/or accessible hatches. At least seven tanks have been removed from the Site and physical evidence exists of

attempts to remove others. Many of the remaining tanks have material present, which could be released if they are moved or upended.

The drums at the Site are present in an open trailer whose floor is severely deteriorated. The trailer is situated within an area of the Site that appears to be heavily used by the persons that are participating in the paintball games. A complete collapse of the trailer floor while someone is present in or around the trailer could result in a release of hazardous substances from the drum that could potentially expose the person to elevated levels of volatile organics and other unknown constituents.

There are high levels of hazardous substances or pollutants or contaminants in soils, largely at or near the surface, that may migrate (**40 CFR §300.415(b)(2)(iv)**). Analytical data indicates that elevated levels of hazardous substances are present in the surface soil at the Site. The fine, sandy soil becomes airborne easily when disturbed under dry conditions. Contaminants such as the PCBs and the PAHs could potentially migrate offsite under this scenario. Areas where the oil-caked soil is hard packed could cause rainwater to runoff onto uncontaminated areas of the Site. The area in and around the former lagoon, and the nature of the VOCs present at that location, increases the potential for subsurface migration, through percolation, during heavy rainfalls. The shallow groundwater aquifer at the Site reportedly flows towards the South Rancocas Creek, in the general direction of the residences located between Hainesport-Lumberton Road and the creek.

Weather conditions exist that may cause hazardous substances to migrate or be released (**§300.415(b)(2)(v)**). Some of the tanks and tanker trucks contain open hatches. Rainfall accumulating within the already structurally compromised tankers will increase the load on the tanks bottoms and the truck jacks. This could increase the potential that additional contaminated oil will be released from the tankers onto the soil, where it would be more available for direct contact by persons accessing the Site.

A CERCLA removal action is warranted at the Site to address certain areas of concern that pose a potential health threat to persons entering onto the Site. The areas of concern at this time include: the contents of the tanks, tanker trucks, and drums; and the contaminated oil residues and sludges released onto the ground surface throughout the Site, and the associated surficial soil contamination. The surface soil sampling that was conducted as part of the removal assessment is insufficient to allow for a determination as to whether a removal action would be warranted on a site-wide basis for the soils. As such, the existing fence should be repaired and/or completed to limit access to the Site until such time as the soil contamination is fully delineated. All of the tanks, tankers, trailers and other items of potential interest should be removed from the Site to lessen the attractiveness of the Site to trespassers that could potentially be exposed to contaminated soil which would, in turn, increase the probability that the fencing would not be breached.

Any potential groundwater contamination that may exist at the Site as a result of past operations was not investigated as part of this removal site evaluation. The presence of elevated VOC levels within the soil of the former lagoon indicates that the potential exists for groundwater contamination at the Site. If there is a groundwater contamination issue at the Site, a subsurface vapor migration pathway could also potentially exist with any associated plume. The

significance of this potential would be dependent on the extent of any potential contaminant plume, its flow direction, and its proximity to structures. Any future investigation of the Site should evaluate these pathways since there is some evidence that there may be several residential wells present within one mile of the Site.

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Image Source:
2002-03-01, "DigitalGlobe", 1:2400, 0.3m, "CIR"

Figure 1: Above Ground Storage Tank Map

PAUL'S TANK CLEANING SITE
HAINESPORT, NEW JERSEY

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REMOVAL SUPPORT TEAM 2
CONTRACT # EP-W-06-072

Weston Solutions, Inc.

In Association With
Scientific and Environmental Associates, Inc.
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Image Source:

Figure 2:
Aerial Location Map

PAUL'S TANK CLEANING SITE
HAINESPORT, NEW JERSEY

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LEGEND
Sample Location
Test Boring Location

Image Source:
2002-02-01, "DigitalGlobe", 1:2400, 0.3m, "CIR"

Figure 3:
Sample Location Map

PAUL'S TANK CLEANING SITE
HAINESPORT, NEW JERSEY

UNITED STATES ENVIRONMENTAL
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